

Remarks

1. Applicant notes that the Examiner has made the Office Action final on the basis that the new ground of rejection set out in the Office Action was necessitated by Applicant's substantial amendment contained in Applicant's arguments and amendments filed on December 30, 2004. However, Applicant asks the Examiner to note that Applicant had no knowledge of the newly cited reference, Berger et al (US5274644), and therefore Applicant could not have anticipated its application against the claims. Consequently, Applicant requests that the Examiner exercise some discretion in considering the following submission. In any event, the following submission is not considered to raise new issues and therefore provides no grounds for refusing to enter this response.

2. The present invention is directed to admission of traffic flows to a network resource such as a communications link in a communications network based on two separate prices determined for an aggregated traffic flow on that resource. The two prices are separately related to the mean bandwidth of the aggregated traffic flow and a bandwidth variance of said aggregated flow. These two prices are then applied to respective mean bandwidth and variance measurements of a traffic flow to be admitted to the network resource as a means of controlling said admission. Thus, the present invention enables admission of the traffic flow to be controlled by two price determinations relating to the bandwidth and variance of the traffic flow to be admitted. This has the advantage that a user of a traffic flow that is bursty in nature, for example, can negotiate a service level agreement or the like offering large variance (which increases price) but accepting a lower mean bandwidth (which reduces price) thereby optimizing their quality of service regarding cost (summation of prices). This example would be particularly beneficial to users whose traffic flows are time sensitive but bursty. For users whose traffic flows are not time sensitive and thus can be buffered without compromising quality of service, such users can

arrange for a relatively large mean bandwidth guarantee but with a low variance which once again enables them to optimize their quality of service vis-à-vis cost/total price.

3. The present invention makes a useful contribution to the art in that it provides a means of managing the admissions of traffic flows to a network resource in accordance with two price determinations relating to the resource, wherein the price determinations can be separately applied to respective corresponding characteristics (measurements) of a traffic flow to be admitted to the resource.
4. The Examiner has rejected claims 21 to 36 under 35 U.S.C. §102 as being anticipated by Berger. Applicant has considered carefully the disclosure of Berger and is somewhat surprised at the conclusions arrived at by the Examiner based on said disclosure as they relate to claims 21 to 36. In the method of the present invention as defined by claim 21, a first step comprises *"sampling an aggregated traffic flow on a network resource to which the traffic flow is to be admitted to obtain a mean bandwidth measurement and a bandwidth variance measurement of said aggregated traffic flow"*. Thus, it is clear that the first step of the method of claim 21 requires knowledge of the status of the resource by way of sampling to obtain the mean bandwidth and bandwidth variances measurements. The method disclosed in Berger is such that *"the admission mechanism does not require information describing the current status of the resource"* (column 3, lines 17 to 20). It is clear therefore that in Berger the method does not involve any sampling of the aggregated traffic flow on the resource. If the Examiner is of a different opinion then the Examiner is requested to clearly point out where exactly this step of the method of claim 21 of the present invention is disclosed in Berger since the Applicant is unable to derive any such understanding from the disclosure of Berger.
5. A second step of the method of claim 21 is directed to *"determining from said mean bandwidth and variance measurements (of the aggregated traffic flow on the*

resource) a price for bandwidth and a separate price for variance" (additional wording added for clarity). Thus, the second step of the method of the invention requires separate prices for bandwidth and variance. In Berger, each requester is assigned tokens at a rate determined by the minimum guaranteed rate associated with said requested which are stored in a bank associated with said requester. However, if the bank is full, further tokens are stored in a bank common to all requesters. Firstly, the rate at which tokens are issued to any requester is not determined from mean bandwidth and/or mean variance measurements derived from the aggregated traffic flow on the resource and secondly, the assignment of tokens initially to a bank associated with a requester and then to a common bank if the requester's bank is full does not comprise separate prices for bandwidth and variance for gaining admission to the resource.

6. The third step of the method of claim 21 is directed to *"sampling the traffic flow to be admitted to the network resource to measure its mean bandwidth and variance"*. There is no disclosure in Berger or any suggestion for that matter that a traffic flow to be admitted to a resource is sampled to determine its mean bandwidth and variance.

7. The fourth step of the method of claim 21 comprises *"applying to said traffic flow the separate prices for bandwidth and variance as a means of controlling admission of the traffic flow to the network resource"*. In Berger, a requester is allowed access to the resource firstly by using tokens stored in that requester's associated bank and then, once that bank is depleted, by using tokens from the common bank. The common bank is shared by all requesters such that any spare capacity of the resource is shared across the traffic classes in proportion that arrivals from each class seek to gain admittance using tokens that have overflowed into the spare (common) bank (column 3, line 67 to column 4, line 3). It is quite clear therefore that Berger does not apply separate prices for bandwidth and variance to each or any traffic flow wishing to be admitted to the resource. It can be seen that in

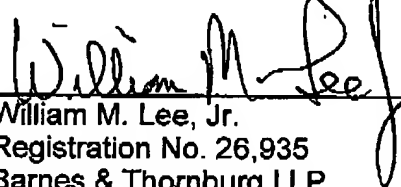
Berger each requester must first use its tokens relating to its guaranteed access to the resource prior to being able to access the common bank to gain access to spare capacity in the resource. This contrasts considerably with the method of the present invention whereby a user of a traffic flow can, for example, negotiate a service level agreement offering large variance (which increases price) but accepting a lower mean bandwidth (which reduces price) thereby optimizing their quality of service regarding cost (summation of prices). Balancing the price of, say, variance against the price of bandwidth is not possible in the method disclosed by Berger since all a user can do is seek to gain use of some extra resources from a common pot (common bank) of extra capacity but has no mechanism to individually determine through a two pronged price mechanism its own level of bandwidth and variance independently of other users. For example, under the method of the present invention, a user can, independently of other users, negotiate a high bandwidth and high variance traffic flow if that user is willing to accept the cost penalty of doing so. Since prices for access to the resource in the present invention are of a closed loop nature through sampling of the aggregated traffic flow on the resource, the agreements reached by users have an impact on future prices determined from the sampling of the aggregate traffic flow on the resource. In contrast, Berger operates an open loop process (column 3, lines 17 to 20).

7. It is clear from the foregoing that Berger fails to teach significant features of the present invention and that the claims are therefore not anticipated by Berger. Also, it is noted that there is nothing in the disclosures of any other prior art references of record that would enable a skilled addressee to modify the disclosure of Berger to arrive at the present invention.

8. In view of the foregoing, it is submitted that the claims submitted herewith are in condition for allowance.

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Respectfully submitted,


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